

JENNER & BLOCK LLP

Reid J. Schar (*pro hac vice*)

RSchar@jenner.com

353 N. Clark Street

Chicago, IL 60654-3456

Telephone: +1 312 222 9350

Facsimile: +1 312 527 0484

CLARENCE DYER & COHEN LLP

Kate Dyer (Bar No. 171891)

kdyer@clarencedyer.com

899 Ellis Street

San Francisco, CA 94109-7807

Telephone: +1 415 749 1800

Facsimile: +1 415 749 1694

CRAVATH, SWAINE & MOORE LLP

Kevin J. Orsini (*pro hac vice*)

korsini@cravath.com

825 Eighth Avenue

New York, NY 10019

Telephone: +1 212 474 1000

Facsimile: +1 212 474 3700

Attorneys for Defendant PACIFIC GAS AND ELECTRIC  
COMPANY

UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF CALIFORNIA  
SAN FRANCISCO DIVISION

UNITED STATES OF AMERICA,

Plaintiff,

v.

PACIFIC GAS AND ELECTRIC COMPANY,

Defendant.

Case No. 14-CR-00175-WHA

**REPORT ON INSPECTIONS OF  
CRESTA-RIO OSO 230 KV  
TRANSMISSION LINE AND  
VEGETATION MANAGEMENT  
CONTRACTOR ESTIMATES AND  
RESPONSE TO COURT'S  
FOLLOW-UP QUESTION**

Judge: Hon. William Alsup

Defendant Pacific Gas and Electric Company (“PG&E”) respectfully submits this (i) report on PG&E’s inspections in 2019 of Tower 009/081 on the Cresta-Rio Oso 230 kV Transmission Line (the “Cresta-Rio Oso Line”) and (ii) response to the Court’s request during the February 19, 2020 hearing on the Court’s January 16 and January 24, 2020 orders to show cause that PG&E provide a target number of contract tree trimmers. (Dkt. 1133; Dkt. 1134.) PG&E is also responding to the Court’s February 21, 2020 follow-up question regarding the relationship between priority codes set forth in PG&E’s Electric Transmission Preventive Maintenance (“ETPM”) Manual and the safety factors specified in General Order 95 promulgated by the California Public Utilities Commission (“CPUC”), as well as the application of each to the C-hooks of interest on the Cresta-Rio Oso Line. (Dkt. 1160.)

**I. Report on Inspections of Tower 009/081 on the Cresta-Rio Oso Line**

PG&E provides below information concerning the climbing inspection of Tower 009/081 performed by a five-person contract crew on January 23, 2019, as well as the review of the findings of those inspectors conducted by members of the Centralized Inspection Review Team (“CIRT”) (two contractors and a PG&E employee). Attached as Exhibit A are the names of and contact information for the individuals who performed the January 23, 2019 climbing inspection, the March 4, 2019 CIRT review of preliminary notifications generated as a result of the climbing inspection, and the July 10, 2019 drone inspection of photographs taken during a March 12, 2019 drone flight of Tower 009/081. Exhibit A also lists the individuals’ employers at the time of the inspections or CIRT review.

PG&E has been working with counsel for the contractor that provided the climbing crew to schedule interviews of two additional linemen on the five-person crew that performed the January 23, 2019 climbing inspection, but has not been able to conduct those interviews at this time. These linemen are no longer employees of that contractor. In addition, since the February 19, 2020 hearing, PG&E has made multiple attempts to contact the drone inspector, who is no longer employed by the contractor that provided his services to PG&E and

1 is currently out of the country. As of this filing, PG&E has not been able to interview the drone  
2 inspector.

3 **January 23, 2019 Climbing Inspection:** On January 23, 2019, in connection  
4 with PG&E's Wildfire Safety Inspection Program ("WSIP"), a five-person contract crew  
5 performed a climbing inspection of the tower on the Cresta-Rio Oso Line field-marked  
6 Tower 009/081. The climbing inspection was recorded on an electronic inspection form, titled  
7 "Steel Structure Detailed/Climbing Inspection Form (Non-500kV Structures)", that was  
8 associated with a tower on the Cresta-Rio Oso Line one span away from Tower 009/081,  
9 identified on the form as Tower 010/082. (Ex. B.) However, included on the inspection form  
10 are photographs of signage on the leg of the inspected tower showing that it was field-marked  
11 Tower 009/081, and the crew entered the following notation in a field labeled "Asset Traits  
12 Differ": "Says 10/82 but leg says 9/81."<sup>1</sup> (*Id.*) The crew foreman submitted the electronic  
13 inspection form on January 23, 2019 at approximately 11:31 a.m. PT. (*Id.*) The climbing crew's  
14 physical location at the time the form was generated was automatically recorded on the form  
15 based on GPS data. The recorded location corresponds to Tower 009/081 on the Cresta-Rio Oso  
16 Line and reads: "Camp Creek Rd, Oroville, CA 95965, USA latitude: 39.814695655405345  
17 altitude: 669.4409 longitude: -121.43395232979341." (*Id.*)

18 The crew that performed the January 23, 2019 climbing inspection used  
19 PG&E-issued smartphones to take more than 30 photographs of equipment on the tower,  
20 including tower legs, footings and foundations, insulator strings, jumper strings, C-hooks and  
21 other cold-end insulator attachment hardware, and hanger plates. The photographs were  
22

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23  
24 <sup>1</sup> For certain of the inspection records associated with the tower field-marked  
25 Tower 009/081, there appears to be a mismatch between the tower number as shown in  
26 photographs of the inspected structure and the tower number with which the record is associated  
27 in PG&E's databases. The climbing and drone inspections for the tower field-marked  
28 Tower 009/081 are recorded on the electronic inspection forms associated with the adjacent  
Tower 010/082. PG&E personnel noted this mismatch between the tower field markings and the  
tower numbers listed on the inspection records. (Ex. B; Ex. E.)

1 included on the electronic inspection form used to document the inspection. (*Id.*) The “Date  
2 taken” metadata field for the photographs indicates that they were taken on the morning of  
3 January 23, 2019.

4 The electronic checklist that the climbing crew completed during the inspection  
5 prompted them to answer a series of questions regarding the condition of various components on  
6 the tower, including C-hooks and hanger plates. The linemen who performed the inspection  
7 answered “No” in response to the following prompts on the electronic inspection form:  
8 “Suspension / Dead-end conductor hardware cold-end in poor condition (e.g. C-hook)”,  
9 “Working eyes and shackles show significant wear”, and “Insulator hanger (eye) plate in poor  
10 condition?” (*Id.*) The climbing crew noted certain other conditions on the tower field-marked  
11 Tower 009/081 that resulted in the creation of preliminary maintenance notifications subject to  
12 further review by the Centralized Inspection Review Team. Specifically, the climbing inspectors  
13 answered “Yes” in response to the prompt, “Are insulators in poor condition and/or  
14 contaminated? (Chipped, cracked, broken, dirty or ‘flashed’).” (*Id.*) In connection with that  
15 finding, the climbing inspection crew entered the following comment: “One bell chipped dead  
16 end bell 5th one from cold end south bells road side.” The climbing inspectors also answered  
17 “Yes” in response to the prompt, “High voltage signs missing”. (*Id.*)

18 The climbing crew entered other information on the electronic inspection form  
19 that did not result in the creation of maintenance notifications, including, for example, a notation  
20 that reads, “[l]ittle spots of rust starting to show”.<sup>2</sup> (*Id.*) The climbing crew also graded the  
21 condition of foundations, stubs and splice plates, steel members, conductor, and hardware and  
22 insulators on a numerical scale from 1 to 5, with 1 representing the best condition and 5 the  
23 worst. (*Id.*) The crew assigned all components a score of 2.

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24  
25 <sup>2</sup> Under PG&E’s ETPM Manual in effect at the time of the inspection, rust is a Priority Code  
26 E condition (to be addressed within 12 months in non-Tier 3 High Fire-Threat District areas)  
27 when it results in material loss of 30 to 50 percent on insulators and steel structures, and a  
28 Priority Code A condition (to be addressed immediately) when it results in more than 50 percent  
material loss on insulators and steel structures.

1           The foreman and two linemen whom have been interviewed generally recall  
2 inspecting towers on the Cresta-Rio Oso Line and other lines in the Feather River Canyon area,  
3 but do not specifically recall their inspection of Tower 009/081 given the multiple towers they  
4 climbed each day for six days a week while assigned to WSIP. After reviewing the inspection  
5 forms, photographs taken during the inspection and their timesheet, the foreman and linemen  
6 confirm that those documents establish that they performed the January 23, 2019 climbing  
7 inspection of Tower 009/081. Their typical practice for climbing 230 kV towers would involve  
8 two members of the five-person crew climbing the tower and hanging from the tower legs to take  
9 zoomed-in photographs of tower components using their PG&E-issued smartphones, while the  
10 other three would remain on the ground to inspect the tower, take photographs from that vantage  
11 point and provide any necessary support to the climbers. Because the crew alternated climbing  
12 and ground-based roles between inspections and climbed multiple towers each day while  
13 assigned to WSIP, the foreman and linemen do not recall who among them did the climbing for  
14 Tower 009/081, but confirm that two of the five crew members would have climbed the tower.  
15 The crew members who climbed Tower 009/081 were required to maintain minimum approach  
16 distances from energized components and would have come within approximately 10 to 15 feet  
17 of the energized components they inspected. At the conclusion of the inspection, the crew would  
18 have transferred the photographs that, in their judgment, most clearly depicted the condition of  
19 the equipment from their smartphones to the electronic inspection form loaded on their PG&E-  
20 issued tablet computer. Based on language entered on the electronic inspection form, the  
21 foreman believes that the comments on the inspection form were his and that he remained on the  
22 ground to complete the electronic inspection form.

23           The foreman and linemen confirm that they would have performed the climbing  
24 inspection to the best of their ability. Regarding their assessment of the condition of the C-hooks  
25 and hanger plates on Tower 009/081 during the January 23, 2019 climbing inspection and their  
26 reasoning process for answering “No” in response to the following prompts on the electronic  
27 inspection form: “Suspension / Dead-end conductor hardware cold-end in poor condition (e.g.  
28

1 C-hook)", "Working eyes and shackles show significant wear", and "Insulator hanger (eye) plate  
2 in poor condition?", (*see* Ex. B), they do not specifically recall their thoughts at the time of the  
3 inspection but estimate, based on their review of photographs taken during the inspection, that  
4 the degree of wear on the C-hooks and hanger plates on the two transposition runner arms of  
5 Tower 009/081 appeared to range from 5 to 10 percent.

6 The foreman and linemen were then shown TCC expert Thomas Hylton's  
7 photographs of the two C-hooks and hanger plates on the transposition runner arms of  
8 Tower 009/081. The foreman and linemen agree that the photographs of the two C-hooks and  
9 hanger plates on the transposition runner arms of Tower 009/081 appear to show a degree of  
10 wear on the C-hooks, the hanger plates or both of approximately 30 percent (the threshold for  
11 assignment of a Priority Code E condition under the ETPM Manual). The foreman and linemen  
12 confirm that their ability to observe wear on C-hooks and hanger plates during the January 23,  
13 2019 climbing inspection could have been affected by a combination of factors, including harsh  
14 sunlight that obscured their vision and cast shadows across the equipment; the minimum  
15 approach distances they were required to maintain from energized equipment; the quality of the  
16 photographs they were able to take using their PG&E-issued smartphones; the angles from which  
17 they photographed the equipment while aloft the tower; and the general difficulty of assessing  
18 the extent of wear on a C-hook and hanger plate without separating the two interlocking pieces to  
19 observe any material loss on the contact surfaces.

20 With respect to the black electrical tape found on two of the C-hooks on  
21 Tower 009/081, the foreman believes the black tape was likely an artifact of the replacement of  
22 the insulator strings and hardware, as black tape is occasionally applied to a C-hook during  
23 replacement of an insulator assembly to prevent the C-hook from dislodging before the insulator  
24 is attached to the hook.<sup>3</sup>

25  
26 <sup>3</sup> This understanding is consistent with PG&E's understanding that black electrical tape  
27 occasionally found on in-service C-hooks is not used to repair or reinforce C-hooks during  
28 normal operation. Rather, some linemen, when installing insulator strings, tape the C-hook to

As noted above, PG&E has been working with counsel for the contractor that provided the climbing crew to schedule interviews of the remaining two linemen who performed the January 23, 2019 climbing inspection, but has not been able to conduct those interviews at this time. These linemen are no longer employees of that contractor.

**July 10, 2019 Drone Inspection:** On March 12, 2019, a PG&E drone operator took approximately 80 photographs of Tower 009/081 by drone in connection with a WSIP inspection of the tower by PG&E's Drone Inspection Review Team ("DIRT"). Attached as Exhibit D are the drone photographs that PG&E provided to the Court at the February 19, 2020 hearing. The "Date taken" metadata field for the photographs indicates that they were taken on March 12, 2019. On July 10, 2019, a contract inspector assigned to DIRT reviewed the photographs.

As with the climbing inspection, the drone inspection for the tower field-marked Tower 009/081 was recorded on the electronic inspection form for the adjacent Tower 010/082. (Ex. E.) The photographs show that the subject tower was field-marked Tower 009/081, and the drone inspector noted on the form that the physical marking of the tower differed from the tower number as shown on the form. (*Id.*) In response to the prompt, "Suspension / Dead-end conductor hardware cold-end in poor condition (e.g. C-hook)", the DIRT inspector responded "No", and noted in the comment field that "surface rust [was] observed". (*Id.*) In response to the prompt, "Insulator hanger (eye) plate in poor condition?", the DIRT inspector responded "No", and noted in the comment field that "surface rust [was] observed". (*Id.*) In response to

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the hanger plate to prevent the hook from falling to the ground before it is secured to the insulator string. Once the insulator string is attached, the tape serves no functional purpose and if not removed is simply an artifact of installation.

Of note, while 10 of the 12 insulators on Tower 009/081 consisted of brown porcelain bells, the two C-hooks on the tower to which black tape had been applied supported insulator strings with grey bells, indicating that they may be of newer vintage. PG&E has identified a July 2001 work order for the replacement of an insulator on the bottom phase of Tower 009/081. (Ex. C.) The work order indicates that the work was completed by June 2002. (*Id.*)



the prompt, “Working eyes and shackles show significant wear”, the DIRT inspector responded “No”, and noted in the comment field, “Brown colored surface rust covering some of the shackles”. (*Id.*) The DIRT inspector noted one condition, relating to a missing or incorrectly installed high-voltage sign. (*Id.*) That condition had already been addressed by the time of the DIRT inspector’s review. (Ex. F-2.)

As noted above, PG&E has made multiple attempts since the February 19, 2020 hearing to interview the drone inspector, but has not been able to arrange an interview at the time of this filing.

**March 4, 2019 Centralized Inspection Review Team Assessment:** As noted above, the findings of the climbing crew resulted in the creation of two preliminary maintenance notifications for subsequent review by PG&E’s Centralized Inspection Review Team: one for a chipped bell on a dead-end insulator, and another for a missing high-voltage sign. (Ex. F.) Consistent with PG&E’s ETPM Manual, both conditions were assigned Priority Code E, a designation requiring that they be addressed within 12 months, based on the location of Tower 009/081 in a Tier 2 High Fire-Threat District area.

On March 4, 2019, CIRT reviewed both preliminary notifications generated for field-marked Tower 009/081. (*Id.*) After reviewing the preliminary maintenance notification for the chipped dead-end insulator on field-marked Tower 009/081, designated notification number 115735148, CIRT concluded that there was “no work required” as the “insulators are in acceptable condition.” (Ex. F-1.) The notification was canceled the same day. (*Id.*) CIRT concurred with the climbing inspectors’ findings of a missing high-voltage sign, associated with notification number 115735149, and new signage was installed on May 21, 2019. (Ex. F-2.)

The CIRT members who reviewed the preliminary notifications for this particular tower consisted of a former journeyman lineman with experience inspecting transmission lines, a mechanical engineer and a structural engineer. The former journeyman lineman and structural engineer would typically review documents and photographs beyond those depicting the conditions identified by the primary inspectors, including, where available, additional drone



1 photographs and design and engineering documents. The mechanical engineer's typical practice  
2 was to review only the preliminary notification generated by the primary inspectors, as well as  
3 any photographs that the primary inspectors included with such notifications. At the time CIRT  
4 performed its review of the preliminary notifications for Tower 009/081 on March 4, 2019, the  
5 drone flight of the tower had not yet occurred and, as a result, the CIRT members did not have  
6 access to the drone photographs.

7           Given the numerous notifications they reviewed during their time with CIRT,  
8 none of the CIRT members specifically recall their review of the preliminary notifications  
9 generated for Tower 009/081. However, they believe based on their review of the records that  
10 they did review the preliminary notifications generated as a result of the January 23, 2019  
11 climbing inspection of Tower 009/081.

12           According to the former journeyman lineman, the CIRT members with whom he  
13 worked on any given assignment would typically look at least once at every photograph  
14 generated from an inspection, and at least one of the CIRT members would typically look closely  
15 at every photograph. The journeyman lineman would often give deference to the views of the  
16 climbing inspectors—including any finding that equipment was in good condition—given their  
17 closer proximity to the equipment. He assessed the degree of wear on the C-hooks and hanger  
18 plates, as shown in the photographs taken during the climbing inspection, at 5 to 10 percent.  
19 With respect to the photographs taken by Mr. Hylton in December 2018 and December 2019, the  
20 former journeyman lineman believes the degree of wear on the C-hooks and hanger plates  
21 depicted in the photographs may have been closer to 10 to 15 percent, but did not reach the 30  
22 percent threshold for a Priority Code E condition. With respect to photographs of the same  
23 C-hooks and hanger plates taken during the January 31, 2020 climbing inspection, the former  
24 journeyman lineman believes that at least one of the C-hooks or hanger plates depicted in those  
25 photographs may have had material loss approaching 30 percent.

26           The mechanical engineer on CIRT acknowledge that some CIRT members would  
27 review photographs and documents beyond those associated with the preliminary notification  
28

1 under review. However, that was not his general practice given the large volume of preliminary  
2 notifications he processed each day. As a result, because neither of the preliminary notifications  
3 generated for Tower 009/081 related to C-hooks or hanger plates, the mechanical engineer would  
4 not have examined photographs of the C-hooks and hanger plates that were taken during the  
5 January 23, 2019 climbing inspection. With respect to the photographs of C-hooks and hanger  
6 plates from that inspection, the mechanical engineer believes that three of the six photographs  
7 were not sufficient for the mechanical engineer to identify wear on the equipment. As to the  
8 other three photographs, the mechanical engineer can observe some wear, but cannot determine  
9 the extent of material loss. On balance, he believes he likely would have generated a work order  
10 to replace the depicted C-hooks and hanger plates had he reviewed those three climbing  
11 inspection photographs.<sup>4</sup> With respect to the photographs taken by Mr. Hylton in  
12 December 2018 and December 2019, the mechanical engineer observes definite wear on only  
13 one of the photographs. In his opinion, the degree of wear warranted a Priority Code E  
14 notification.

15           The structural engineer on CIRT described his typical process for reviewing  
16 preliminary notifications. He would review all of the inspection forms and photographs  
17 available at the time of the inspection and would raise any difficult issues for discussion with the  
18 other members of CIRT assigned to the review. Consistent with his typical practice, the  
19 structural engineer would have reviewed all photographs of Tower 009/081 available at the time  
20 of the inspection, including the photographs taken during the January 23, 2019 climbing  
21 inspection. With respect to the photographs of C-hooks and hanger plates taken during the  
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23  
24           <sup>4</sup> The inspectors who climbed Tower 009/081 on January 31, 2020 generated preliminary  
25 notifications for worn hanger plates and C-hooks on the tower. The mechanical engineer was  
26 also one of the CIRT members who reviewed these preliminary notifications for worn C-hooks  
27 and hanger plates. As a result of that review, CIRT concurred with the findings of the climbing  
28 inspectors and generated two Priority Code E notifications to replace the hanger plates and  
C-hooks on the tower. That work is currently scheduled to take place during a planned outage on  
the line in mid-March 2020.

January 23, 2019 climbing inspection, the structural engineer observes surface rust and no more than 10 to 20 percent material loss on the hooks and hanger plates. With respect to the photographs taken by Mr. Hylton in December 2018 and December 2019, he can observe definite wear on only one of the photographs. He indicated that the wear warranted a Priority Code E notification.

## **II. Response to February 21, 2020 Follow-Up Question**

In its order dated February 21, 2020, the Court asked PG&E to “reconcile its priority code assignment guidelines” with Rule 44.3 of CPUC General Order 95. As the Court noted, PG&E’s current ETPM Manual provides that C-hooks that have material loss of between 30 and 50 percent are to be assigned Priority Code E, a designation that requires they be replaced within 12 months (or 6 months if the structure is located in a Tier 3 High Fire-Threat District area). C-hooks that have material loss of more than 50 percent are assigned Priority Code A, a designation that requires they be replaced immediately.

PG&E’s system of priority codes for replacement of C-hooks and other transmission line hardware is consistent with the safety factors prescribed by Rules 44.1 and 44.3 of CPUC General Order 95. Rule 44.3 provides that “[l]ines or parts thereof shall be replaced or reinforced before safety factors have been reduced (due to factors such as deterioration and/or installation of additional facilities) in Grades ‘A’ and ‘B’ construction to less than two-thirds of the safety factors specified in Rule 44.1 and in Grade ‘C’ construction to less than one-half of the safety factors specified in Rule 44.1.” Rule 44.1, in turn, refers to Table 4, which specifies safety factors for different types of components. Under the framework set forth in Table 4, C-hooks and hanger plates are types of “[p]ole line hardware” subject to a safety factor of 2. In addition, as the Court has noted, the CPUC Safety and Enforcement Division’s report on the Camp Fire acknowledges that C-hooks are subject to a safety factor of 2.

Determining whether any given C-hook has reached less than two-thirds of the safety factor of 2 (*i.e.*, a safety factor less than 1.33), and therefore must be replaced or

reinforced under Rule 44.3, requires a comparison of the maximum load that C-hook is able to support and the load that C-hook is required to support. Based on PG&E's review of design drawings and use of power line modeling software, PG&E estimates that the load supported by a typical C-hook on the Cresta-Rio Oso Line ranges from a minimum of approximately 375 pounds (for C-hooks that support only jumpers and their associated suspension insulators) to a maximum of approximately 2,900 pounds (for C-hooks that support transmission line conductors along tower spans and their associated suspension insulators). These estimated loads incorporate "heavy loading" requirements under Rules 43 and 43.1 of General Order 95.

Based on the foregoing estimates for the Cresta-Rio Oso Line and PG&E's analysis of the maximum loads that C-hooks with varying degrees of wear can support, PG&E understands that the safety factor of a C-hook with 30 to 50 percent material loss (the threshold for assignment of Priority Code E and replacement within 12 or 6 months under PG&E's current ETPM Manual) would not be reduced to less than two-thirds of the safety factor of 2 prescribed by General Order 95, even under heavy loading conditions—*i.e.*, the safety factor would still exceed 1.33. The safety factor would remain above 1.33 regardless of whether the C-hook with 30 to 50 percent wear supported a relatively low-weight jumper assembly or a heavier load such as transmission line conductor along tower spans and the associated suspension insulators.

### **III. Report on Tree Trimmer Workforce**

The Court requested that PG&E commit to a specific number of tree trimmers that it will employ by a date certain. PG&E is not able to provide the Court with the specific number of contracted tree trimmers PG&E intends to hire as of a specific future date because its vegetation management and wildfire mitigation work (of which vegetation management is one component) are complex and continuously improving programs that must respond to changing circumstances as PG&E and other stakeholders learn more about what are the most effective wildfire mitigation measures in current conditions. The scope of PG&E's wildfire mitigation

1 program must adapt to changing circumstances and priorities in cooperation with state regulators  
2 and CAL FIRE. Failure to adapt could create safety risks rather than reduce them.

3 As explained to the Court in PG&E's February 12, 2020 submission (the "Feb.  
4 12, 2020 Submission"), PG&E had retained a tree trimming workforce of approximately 5,500  
5 personnel at the end of 2019 (Feb. 12, 2020 Submission at 11); it began this year with roughly  
6 that same number of personnel. PG&E expects to maintain approximately its current tree  
7 trimmer workforce while it addresses any remaining 2019 work. As also explained to the Court,  
8 PG&E did not reach its CEMA target because of scheduling changes to prioritize routine  
9 vegetation management work in higher fire-risk areas, not because of how many tree trimmers  
10 were available. (*Id.* at 7-8.) With respect to compliance with general vegetation management  
11 regulations, PG&E explained in its February 12 submission that there were approximately  
12 22,000 trees that represented compliance issues for which work had not been completed by  
13 year-end 2019. (*Id.* at 6-7.) Many of those trees were identified only towards the end of the year  
14 and would be worked in the ordinary course. (*Id.*)

15 After this work is completed, PG&E will continue to monitor the tree trimming  
16 resources required to meet its compliance obligations and Wildfire Mitigation Plan targets. The  
17 total workforce of tree trimmers is not expected to remain at all times at the current peak for a  
18 variety of reasons. Indeed, many of those tree trimmers are from out of state and cannot  
19 continue to remain available permanently. That is one of the key reasons that PG&E is  
20 continuing to undertake all of the programs discussed in its February 12 submission and at the  
21 recent hearing to expand the pool of available California-based tree trimmers.

22 More generally, however, it is critical that PG&E not be forced to commit to a  
23 specific number of workers for a single part of its multi-faceted wildfire safety efforts. PG&E  
24 must maintain the flexibility, with the guidance of the state regulator and in communication with  
25 key stakeholders such as CAL FIRE, to determine where it should deploy its available resources  
26 at any given time to mitigate wildfire risk most effectively. In total, PG&E spent approximately  
27 \$3.36 billion in 2019 on vegetation management programs (routine, CEMA and other programs)  
28

1 and other wildfire mitigation work. That budget has been increased to approximately \$3.7  
 2 billion for 2020. While this is a significant financial commitment, the reality is that it still  
 3 represents a finite resource pool that PG&E is able to spend on vegetation management and  
 4 wildfire mitigation work without raising customer rates. These resources must be deployed with  
 5 appropriate flexibility in ever-changing circumstances.

6 While the Court's order and proposed condition focus on tree trimmers, that is  
 7 only one part of a much broader and more comprehensive effort to reduce wildfire risk. PG&E's  
 8 wide-ranging plan addresses risk in a variety of ways, including the following:

- 9 • Performing Enhanced Vegetation Management ("EVM") work around  
 10 distribution lines and expanding rights-of-way and removing incompatible  
 11 vegetation along lower-voltage transmission lines in high fire-threat areas;
- 12 • Conducting enhanced and more frequent inspections of electrical equipment in  
 13 high fire-threat areas to identify components that need repair or replacement;
- 14 • Performing system hardening, including replacing bare overhead wire with  
 15 covered conductor and installing stronger poles or undergrounding select lines;
- 16 • Installing Supervisory Control and Data Acquisition ("SCADA")-enabled  
 17 reclosers to allow remote disabling of reclosing in high fire-threat conditions;
- 18 • Increasing situational awareness to provide early warning of high fire-risk  
 19 conditions, real-time identification of emerging fires and more granular awareness  
 20 of weather conditions, including installing localized weather stations,  
 21 high-definition cameras, enhanced wire-down detection tools and monitoring  
 22 real-time satellite data and multiple external real-time weather service feeds  
 23 across PG&E's service territory;
- 24 • Staffing a Wildfire Safety Operations Center ("WSOC") supported by a highly  
 25 qualified, 24/7 meteorology operation ("Meteorology Team"), which together  
 26 have the field tools and analytical capabilities to forecast wildfire threats, identify  
 27 actual fires, and support rapid-fire response and grid operational responses;
- 28 • Running a Public Safety Power Shutoff ("PSPS") program supported by the  
 WSOC and Meteorology Team to de-energize lines in extremely high-risk  
 conditions where other wildfire mitigation tools may not prevent an ignition;
- Improving transmission switching and distribution sectionalization to more  
 precisely control and limit the size of PSPS events;

- 1       •       Developing microgrids to isolate and power critical facilities while the rest of a
- 2           local area is de-energized during a PSPS event; and
- 3       •       Reducing the duration of a PSPS by improving practices and increasing resources
- 4           to support restoration after a PSPS event.

5       In deciding where to allocate its wildfire mitigation resources, PG&E therefore must consider not  
6       only its EVM program, but all wildfire mitigation efforts across its system.

7               PG&E therefore must maintain the flexibility to make risk-informed decisions  
8       about how best to deploy resources based on evolving facts and circumstances. PG&E does not  
9       make those decisions on its own. To the contrary, PG&E's development of plans for wildfire  
10      mitigation is governed by California Public Utilities Code § 8386, pursuant to which the  
11      California legislature vested responsibility for utility wildfire mitigation planning with the  
12      CPUC. PG&E submitted its 2020 Wildfire Mitigation Plan to the CPUC on February 7, 2020,  
13      and the Plan is the subject of an ongoing proceeding under § 8386 that provides for significant  
14      stakeholder review and comment and ultimately gives the authority to review and approve the  
15      plan to the CPUC. Imposing a specific requirement that PG&E employ a particular number of  
16      tree trimmers would deny PG&E the flexibility it needs to allocate resources where they will be  
17      most effectively used, interferes with the legal jurisdiction that the legislature has given the  
18      CPUC, and would improperly supplant the regulatory framework governing wildfire mitigation  
19      plans put in place by the California legislature. *See United States v. Abushaar*, 761 F.2d 954,  
20      960 (3d Cir. 1985) (holding that "[a] condition of probation may not circumvent another  
21      statutory scheme").

22               Last year was the first year for the state-required wildfire mitigation plans. It also  
23      represented a fundamental turning point for PG&E and the state with respect to addressing  
24      wildfire risk. PG&E knows that its systems and processes are not perfect, and that includes the  
25      programs that were utilized for the very first time just last year. Adapting mitigation programs to  
26      the changing environment is critical to success. For example, in 2019, PG&E implemented its  
27      EVM program for the first time and committed to completing EVM work on almost 2,500 miles  
28



1 of its distribution lines by the end of the year. PG&E more than tripled its vegetation  
2 management workforce to achieve its 2019 EVM target while still meeting its other vegetation  
3 management commitments, despite having to complete most of that work in the latter part of the  
4 year. (*See* Feb. 12, 2020 Submission at 2.)

5 In 2020, as part of its continual assessment of its wildfire mitigation programs,  
6 PG&E has decided to shift some of its EVM resources to a new program to expand rights-of-way  
7 and remove incompatible vegetation around lower-voltage transmission lines (which are not  
8 subject to the same clearance requirements as higher-voltage transmission lines) in order to  
9 decrease wildfire risk around those lines and reduce the footprint of future PSPS events by  
10 allowing some transmission lines to remain energized. (PG&E 2020 Wildfire Mitigation Plan,  
11 submitted on February 7, 2020, at Executive Summary-6, *available at*  
12 [https://www.pge.com/pge\\_global/common/pdfs/safety/emergency-preparedness/natural-](https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/2020-Wildfire-Safety-Plan.pdf)  
13 [disaster/wildfires/wildfire-mitigation-plan/2020-Wildfire-Safety-Plan.pdf](https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/2020-Wildfire-Safety-Plan.pdf).) This is a result of  
14 PG&E's learnings over the course of 2019. Based on its operational experience and expertise,  
15 PG&E determined that wildfire risk could be further reduced by shifting resources to support  
16 more targeted de-energization decisions, which, as the Court has recognized, is critical to  
17 protecting homes and saving lives.

18 PG&E is also planning other changes based on input from key stakeholders. One  
19 such program, supported by CAL FIRE, is vegetative fuel reduction—clearing grasses and fast-  
20 burning vegetation beneath lines to reduce the chance that an ignition, even if it occurs, will  
21 develop into a wildfire by removing the fuels that have fed the fast-moving, wind-driven fires  
22 Northern California has experienced in the last three years. This vegetation work does not need  
23 to be performed by tree trimmers. Instead of locking itself into specific headcount requirements  
24 for tree trimmers alone, PG&E must have the ability, while still meeting all of its compliance  
25 requirements and Wildfire Mitigation Plan commitments, to spend available wildfire mitigation  
26 funding where it will have the greatest impact in its view and the view of experts at CAL FIRE.

1 To be clear, PG&E is committed to expanding the underlying pool of qualified  
2 tree trimmers in California, and it will hire from that pool to meet its compliance and wildfire  
3 mitigation commitments, as well as to perform its routine vegetation management work. As set  
4 forth in its February 12 submission, one goal of PG&E's Tree Trimmer Training and Certificate  
5 Program is to train approximately 2,800 additional qualified tree trimmers in 2021. (Feb. 12,  
6 2020 Submission at 17; VM Decl. ¶¶ 36-39.) That pool will be available to replace out-of-state  
7 tree trimmers (whom PG&E must pay a significant premium to bring into the state) as they leave  
8 California or replace poorly performing trimmers as PG&E continues to improve its vegetation  
9 management work. However, PG&E's rapid expansion of its tree trimmer workforce at the end  
10 of 2019 was driven by the need to complete a high volume of EVM work in the closing months  
11 of the year. While PG&E has maintained that workforce in the first months of 2020, it will  
12 likely be both unnecessary and financially unsustainable to retain the current number of tree  
13 trimmers for all of 2020 when the vegetation management work can be conducted at a steady  
14 pace throughout the full year. PG&E therefore will access the expanded pool to maintain the  
15 right number of tree trimmers to meet its vegetation management and wildfire mitigation  
16 commitments, without spending its limited resources on additional trimmers where the money  
17 would be better spent on other critical wildfire mitigation efforts.

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Respectfully Submitted,

2 JENNER & BLOCK LLP

3  
4 By: /s/ Reid J. Schar  
5 Reid J. Schar (*pro hac vice*)

6 CRAVATH, SWAINE & MOORE LLP

7  
8 By: /s/ Kevin J. Orsini  
9 Kevin J. Orsini (*pro hac vice*)

10 CLARENCE DYER & COHEN LLP

11  
12 By: /s/ Kate Dyer  
13 Kate Dyer (Bar No. 171891)

14  
15 Attorneys for Defendant PACIFIC GAS  
16 AND ELECTRIC COMPANY